

**PORTABLE X-RAY FLUORESCENCE LEAD-BASED PAINT DETECTION
RADIATION SAFETY AND COMPLIANCE**

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INDIANA STATE DEPARTMENT OF HEALTH
Indoor & Radiological Health Division
2 North Meridian Street, 5F
Indianapolis, IN 46204-3003

Date: March 10, 2000

TO: Registrants and Authorized Users of Lead-Based Paint Analyzers

The use of x-ray fluorescence lead-based paint analyzers containing cobalt-57, cadmium-109, or other naturally-occurring or accelerator-produced radioactive materials (NARM) are subject to the requirements of the Indiana Rule of Radiation Control, 410 IAC 5. All persons or company's possessing and using such detection devices in Indiana should review the following pages to ensure compliance with regulatory requirements. Additionally, recommendations on radiation safety and emergency procedures are included.

In general, individuals or companies are required to register said devices and complete the manufacturers' training course prior to use. Registrants are required to renew the Radioactive Material Registration every two years. There are no fees associated with the registration application process, however, there is a nominal fee to obtain a copy of the Indiana Rule for Radiation Control.

Questions regarding the requirements and recommendations contained in this handout should be directed to:

Rex J. Bowser, Radiation Specialist
Radioactive Material Program
317/233-7153
317/233-7154 fax

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APPLICABLE REGULATIONS:

- Radiation Control Act of Indiana, IC 16-41-35
- Indiana Rule for Radiation Control:
 - 410 IAC 5-4 Standards for Protection Against Radiation
 - 5-5 Radiation Safety Requirements For Non-Medical Radiographic Operations
 - 5-10 Notices, Instructions and Reports to Workers; Inspections
- Title 49 Code of Federal Regulations (Oct. 1, 1996), U.S. Department of Transportation, Class 7, Radioactive Materials:
 - Part 173.422 Additional Requirements For Excepted Packages Containing Class 7
 - Part 173.424 Excepted Packages for Radioactive Instruments and Articles

COMPLIANCE ISSUES:

1. State Registration
 - a. Complete and submit for approval the Radioactive Material Registration Application, State Form 11627. This registration shall be renewed every twenty-four (24) months per IC 16-41-35-27. Our office will issue a Registration certificate upon approval of your application. This certificate must be prominently displayed. The certificate contains your Registration number and an expiration date.
 - b. Analyzers shall not be transferred, abandoned, or disposed of except to an authorized person per 410 IAC 5-3-22 and 410 IAC 5-4-16.
2. Physical Inventory
 - a. The Registrant will conduct a quarterly physical inventory to account for all sealed sources received or possessed, 410 IAC 5-5-9.
 - b. Records of inventories shall be maintained for a period of two (2) years for inspection by the Indiana State Department of Health, Indoor and Radiological Health Division (ISDH, I & RH Div.), 410 IAC 5-5-9.
 - c. Each inventory record shall include:
 - 1) Manufacturer, instrument model number and serial number.
 - 2) Source/capsule serial number; source date (assay date); isotope and activity in millicuries (mCi).
 - 3) Normal storage location of instrument when not in use.
 - 4) Date of inventory.

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3. Utilization Logs

- a. Each registrant shall maintain current utilization logs. These logs shall be kept for two (2) years for inspection by the ISDH, I & RH Div., 410 IAC 5-5-10.
- b. The logs shall include:
 - 1) Manufacturer, instrument model number and serial number.
 - 2) Name of the authorized user.
 - 3) Locations where used and dates of use.

4. Leak Test and Source Replacement

- a. Each instrument shall be leak tested for leakage at intervals not to exceed six months, 410 IAC 5-5-8. Records of leak tests shall be available for inspection.
- b. Source replacement shall be performed by the instrument manufacturer.

5. Training

These instruments are to be possessed and used solely by individuals that have completed a manufacturers' training course. Training requirements are found in 410 IAC 5-5-12 and 5-5-20. Copies of training certificates must be on file with the ISDH.

6. Authorized Users

Authorized Users are individuals who have properly completed a manufacturers' training course. Only persons so designated are authorized to possess, store, and operate XRF analyzers.

7. Security

The instrument must remain under the direct supervision of an authorized user while measurements are being made or locked away in a secure area when not in use, 410 IAC 5-4-14. Each analyzer and instrument case shall be locked when the instrument is not in use, 410 IAC 5-5-5 & 6.

8. Inspections

Per 410 IAC 5-10-5, the ISDH, I & RH Div. shall be afforded the opportunity to inspect and/or investigate activities relating to radiation control. Duly appointed agents of the Department have the right to enter in or upon private property to inspect radiation devices, radiation safety practices, and records.

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9. Shipping and Transportation, Federal DOT

Analyzers shall be transported in accordance with federal Department of Transportation regulations. Specifically, 49 CFR Part 173.422, Additional Requirements for Excepted Packages Containing Class 7 (Radioactive) Material, states that the shipment of these analyzers must be certified as being acceptable for transportation by having a notice enclosed in or on the package. This notice, otherwise known as the Shipper's Certification or Shipper's Declaration, must include the name of the consignor or consignee. This notice must also state the following: **"This package conforms to the conditions and limitations specified in 49 CFR 173.424 for radioactive material, excepted package-instruments or articles, UN2910"**. This Shippers Certification shall accompany the analyzer and package at all times. An example of such a Certification is attached for your review (See Page 6).

In addition, 49 CFR Part 171.15, requires notification at the earliest practicable moment to the National Response Center (1-800-424-8802) if a transportation incident involves fire, breakage, spillage, or suspected radioactive contamination occurs during the shipment of radioactive materials. 49 CFR 171.16 further requires a written report to be filed in the case of such incidents on the appropriate DOT form.

10. Operating and Emergency Procedures

- a. The registrant's operating and emergency procedures shall include instructions as described in 410 IAC 5-5-13 and an adequate radiation safety program to keep personnel exposures As Low As Reasonably Achievable (ALARA), 410 IAC 5-5-3.1.
- b. The I & RH Division shall be contacted at the phone numbers listed on the next page for the following incidents or situations, 410 IAC 5-4-23:
 - 1) Theft or loss of an analyzer - Also immediately notify the local and/or State law enforcement authorities, 410 IAC 5-4-22.
 - 2) Leak test results that exceed the limits specified in 410 IAC 5-5-8.
 - 3) Damaged shielding or inoperable shutter mechanism that compromises the inherent radiological safeguards of the analyzer.
 - 4) Overexposure - radiation exposure of an individual wearing a dosimetry device, as recommended on the following page, that exceeds the applicable limits in 410 IAC 5-4-2.
- c. Each instrument case shall contain the following telephone numbers for notification in event of an emergency:
 - 1) The owner's work and after-hours telephone numbers.

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- 2) Indiana State Department of Health
Indoor and Radiological Health Division
2 North Meridian Street, 5th Floor
Indianapolis, IN 46204-3003
317/233-7153 or 7147 or 7149 during normal office hours.
317/233-8115 after hours.
317/233-7154 fax

RECOMMENDATIONS:

1. Personnel Dosimetry - Authorized users should wear radiation dosimetry badges when using the lead paint analyzers. Badges will indicate an accumulated exposure to radiation. They are normally exchanged at monthly intervals. Dosimetry badges are available from several commercial outlets. The goal, of course, is to keep radiation exposures As Low As Reasonably Achievable (ALARA) for the user as well as the public.
2. Transportation Safety - When transporting the analyzers in your vehicle, the analyzer and carrying case should be placed away from the driver and passenger compartment as far as practicable. This is practicing ALARA. In car type vehicles, this shall mean the analyzer will be placed in the locked trunk. In a pick up truck, cargo van, or similar type vehicle the analyzer shall be secured from moving in the extreme rear of the vehicle. The analyzer shall be locked in the factory supplied carrying case at all times during transportation.
3. Training - It is recommended that each authorized user complete an annual radiation safety course, along with other pertinent training in the proper use of the analyzers. Emergency procedures should be reviewed at least annually. Attendance at training sessions should be documented and the records kept on file.
4. Incidents - Any incident which may result in excessive radiation exposure as described on page 4, 10. b. 3); may require securing the area and keeping people at a safe distance. This may require immediate notification of local authorities.
5. NEVER point this instrument at anyone. Note: This may seem facetious, but it was no laughing matter after we investigated an incident where a stolen analyzer was found by several good Samaritans. However, prior to reporting their find, they took the "radar gun", pulled the trigger, and unknowingly exposed several persons to a radiation beam.
6. DO NOT LEAN into the radiation beam. Be sure NO OTHER INDIVIDUALS are directly IN-LINE with radiation beam when taking measurements.

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8. An owner's manual should be kept in each instrument case for reference by users.

EXAMPLE OF SHIPPER'S CERTIFICATION

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United States Department of Transportation
Shipper's Declaration for Excepted Radioactive Materials - Instruments or Articles

THIS COMPLIANCE STATEMENT SHOULD ACCOMPANY THIS PACKAGE AT ALL TIMES.

This package conforms to the conditions and limitations specified in 49 CFR 173.424 for radioactive material, excepted package - instruments or articles, UN-2910.

This is to certify that the contents of the consignment are properly described by name and are packaged, marked, and are in proper condition for transportation according to all applicable regulations of the Department of Transportation. This consignment is within the limitations prescribed for passenger aircraft.

For further information contact:

Company/Owner

Address

Contact person

Office and emergency phone numbers

To report an emergency or incident in Indiana with the analyzer, contact:

Indiana State Department of Health

Indoor and Radiological Health Division

Radioactive Material Program Coordinator

317/233-7153 or 7147 or 7149

317/233-7154 fax

317/233-8115 after hours (specify a radiation emergency)

THIS COMPLIANCE STATEMENT SHOULD ACCOMPANY THIS PACKAGE AT ALL TIMES.